

CLAIMS

We claim:

- 1) A method for processing video data by a cascade of video processing entities, the method comprising the steps of:
 - receiving, by a video processing entity of the cascade, input video data and associated control signals;
 - determining, by the video processing entity, in response to at least one associated control signal, whether to process the input video data or to bypass the input video data such as to provide output video data;
 - processing the input video data, by the current video processing entity, or bypassing the input video data, in response to the determination; and
 - allowing a next cascaded entity to receive the output video data and the associated control signals.
- 2) The method of claim 1 further comprising providing, by another entity, additional data to the video processing entity.
- 3) The method of claim 1 wherein the associated control signals comprise video type indication.
- 4) The method of claim 1 wherein the associated control signals comprise color component indication.
- 5) The method of claim 1 wherein the step of determining involves comparing at least one control signal to a video processing entity mask.
- 6) The method of claim 1 wherein the associated control signals comprise a valid indication signal.
- 7) The method of claim 1 wherein the next entity is a next video processing entity.
- 8) The method of claim 1 wherein the steps of receiving, determining and processing are repeated until a predetermined video processing entity of the cascade allows a next entity to receive the output video data of the predetermined video processing entity.
- 9) The method of claim 1 wherein each input video data is associated to a pixel.
- 10) The method of step 9 wherein the steps of receiving, determining and processing are repeated until a predefined portion of an image is processed.

- 11) The method of claim 1 wherein each input video data is associated with a pixel color component.
- 12) The method of step 11 wherein the steps of receiving, determining and processing are repeated until a predefined portion of an image is processed
- 13) The method of claim 1 wherein video data can represent video data of at least one video type.
- 14) The method of claim 1 wherein the video signals are provided by a pre-processing entity or from another unit.
- 15) The method of claim 1 wherein the steps of receiving, determining and processing are repeated until a predetermined amount of pixels are provided to a termination unit.
- 16) The method of claim 15 wherein the termination unit is a display unit or a memory unit.
- 17) The method of claim 1 wherein at least one control signal is responsive to a state of at least one video processing entity.
- 18) The method of claim 1 wherein at least one control signal is responsive to a state of at least one other entity that is coupled to the cascade.
- 19) The method of claim 18 wherein the at least one other entity is a termination unit or a memory unit adapted to provide additional information to a video processing entity of the cascade.
- 20) The method of claim 1 wherein the step of processing input video data by the current video processing unit involves at least one operation selected from the group consisting of: rotation; resizing, picture brightness control operation, picture contrast control operation, and picture saturation control operation.
- 21) The method of claim 1 wherein the step of processing input video data by the current video processing unit involves at least one operation selected from the group consisting of: color format conversion, alpha blending, LCD display gamma adjustment and color space reduction.
- 22) A method for processing video signals by a cascade of video processing entities, the method comprising the steps of:
receiving, by a video processing entity of the cascade, input video data and associated control signals;

providing the input video data to a selected path out of at least one bypass path and at least one video processing path in response to at least one associated control signal;

outputting output video data from the selected path and outputting associated control signals; and

repeating the steps of receiving, providing and outputting until a predefined entity receives the output video data.

23) The method of claim 22 wherein each path of the at least one processing path and the at least one bypass path have substantially the same latency.

24) The method of claim 1 wherein the predefined entity is a termination unit that is coupled to the cascade of video processing entities.

25) A cascade of at least two video processing entities, whereas each video processing entity comprises:

an input interface for receiving input video data and associated control signals; logic, coupled to the input interface, for receiving at least one control signal and in response to select a selected path out of at least one processing path and at least one bypass path; whereas the selected path outputs output video data; and

an output interface, coupled to the at least one processing path and to the at least one bypass path, for allowing a next cascaded entity to receive at least the output video data.

26) The cascade of claim 25 whereas the next cascaded entity is video processing entity or a termination unit.

27) The cascade of claim 25 wherein at least one video processing entity is adapted to receive additional data from another entity.

28) The cascade of claim 25 wherein the associated control signals comprise video type indication.

29) The cascade of claim 25 wherein the associated control signals comprise color component indication.

30) The cascade of claim 25 wherein the logic is adapted to compare at least one control signal to a video processing entity mask.

31) The cascade of claim 25 wherein the associated control signals comprise a valid indication signal.

32) The cascade of claim 25 wherein each input video data is associated with a pixel or a pixel color component.

- 33) The cascade of claim 25 wherein a first cascaded video processing entity is coupled to a pre-processing unit such as to receive from the pre-processing unit a sequence of associated control signals.
- 34) The cascade of claim 33 wherein each input video data is associated with a pixel or a pixel color component.
- 35) The cascade of claim 33 wherein the pre-processing unit provides the sequence of associated control signal until the cascade processes a predefined portion of an image.
- 36) The cascade of claim 33 wherein the pre-processing unit halts or restarts a provision of associated control signals to the first cascaded video processing entity in response to a status of at least one video processing entity.
- 37) The cascade of claim 34 wherein the pre-processing unit halts or initializes a provision of associated control signals to the first cascaded video processing entity in response to a status of another entity that is coupled to the cascade.
- 38) The cascade of claim 25 wherein video data can represent video data of at least one video type.
- 39) The cascade of claim 25 wherein the last cascaded video processing entity is coupled to a termination unit.
- 40) The cascade of claim 39 wherein the termination unit is a memory unit, a display unit or a display interface.
- 41) The cascade of claim 39 wherein the first video processing entity stops to receive associated control signals when a predefined amount of video data is provided to the termination unit.
- 42) The cascade of claim 25 wherein at least one associated control signal is responsive to a state of at least one video processing entity.
- 43) The cascade of claim 25 wherein at least one control signal is responsive to a state of at least one other entity that is coupled to the cascade.
- 44) The cascade of claim 43 wherein the at least one other entity is a termination unit or a memory unit adapted to provide additional information to a video processing entity of the cascade.
- 45) The cascade of claim 25 wherein at least one cascaded video processing entity is adapted to perform at least one of the following video processing processes: rotation; resizing, picture brightness control operation, picture contrast control operation, and picture saturation control operation.

46) The cascade of claim 25 wherein at least one cascaded video processing entity is adapted to perform at least one of the following video processing processes: color format conversion, alpha blending, LCD display gamma adjustment and color space reduction.

47) A computer readable medium having code embodied therein for causing an electronic device to perform the steps of: receiving, by a current video processing entity, input video data and associated control signals; determining, by the current video processing entity, in response to at least one associated control signal, whether to process the input video data or to bypass the input video data such as to provide output video data; processing the input video data, by the current video processing entity, or bypassing the input video data, in response to the determination; and allowing a next cascaded entity to receive the output video data and the control signals.

48) A computer readable medium having code embodied therein for causing an electronic device to perform the steps of: receiving, by a video processing entity of the cascade, input video data and associated control signals; providing the input video data to a selected path out of at least one bypass path and at least one video processing path in response to at least one associated control signal; outputting output video data from the selected path and outputting associated control signals; and repeating the steps of receiving, providing and outputting until a predefined entity receives the output video data.